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COMMUNICATIONS

OPHTHALMIC CASES SEEN DURING A PERIOD OF FOUR YEARS IN THE R.A.M.C.

BY

W. WALLACE, M.D.,

LONDON

THE following statistical report gives an analysis of the ophthalmic cases seen by one specialist during an uninterrupted period in the R.A.M.C. of four years, from the beginning of May, 1915.

It comprises cases seen at the Military Hospital, Colchester, chiefly out-patients and a few in-door; in-door patients at the Military Hospital, Bethnal Green; out-patients at No. 2 London General Hospital, Chelsea; and out-patients seen during the last weeks of service at No. 4 London General Hospital, Denmark Hill.

As the method of examination was identical in each hospital, the cases may be grouped as a whole, and local conditions will be described as they arise.

The totals are the following:		
Colchester, 25 months:		
New cases, out-patients	6,489	
Further attendances	4,200	
In-patients	276	
	——	10,965
Bethnal Green, 4 months:		
In-patients		251
Chelsea, 17 months:		
New cases, out-patients	5,758	
Further attendances	1,642	
	——	7,400
Chelsea, casual out-patients, and Denmark Hill, new cases, 2 months		409
Total		19,025
Spectacles prescribed or ordered		2,422
Artificial eyes supplied, Chelsea and Denmark Hill		1,469

Colchester.—An ophthalmic department at the Military Hospital, Colchester, did not exist when I was posted there at the beginning of May, 1915, and as no M.O. at the time was deputed specially to attend to eye cases, they were entrusted to me. As soon as it became known that these cases could be dealt with at the hospital, the M.O.'s attached to the various regiments in the garrison began to send up men for visual tests or treatment, and these patients formed the nucleus of a clinique which, as the numbers show, increased to such an extent that an out-patients' department had to be provided for eye-cases. In addition, the services of a second ophthalmologist were required at intermittent periods.

By October, 1915, the out-patient department had justified its existence, and was officially recognized by my being accorded the status of ophthalmic specialist to the Colchester district.

The in-door cases were scattered throughout the hospital at first. Occasionally four or five beds were found in one ward, but it was not till July, 1916, that part of a hut was set apart for eye-cases requiring in-door treatment. This accounts for the small number of in-patients, and reference to this will be found below.

The Ophthalmic Centre was opened in March, 1916.

In October, 1916, I was appointed inspector of Ophthalmic Centres in the Eastern Command, the system initiated at Colchester apparently having proved worthy of adoption by the other eighteen Centres in the Command. My responsibilities in this direction ceased with my transfer to the London District at the end of May, 1917.

The Colchester District comprises the three counties of East Anglia, and men were sent in from the scores of stations in this part of the country. Serious cases admitted from convoys to attached Auxiliary Hospitals had to be reported at once and were attended to on the spot or transferred to the Hospital if they could be moved. In this way control was exercised over a very wide area.

Indoor Patients—Colchester

Affections of lids and lacrymal apparatus ...	65
Cornea	34
Iris and ciliary body	12
Lens	8
Vitreous	5
Choroid	3
Retina	12
Optic nerve	3
Medical examinations	36
Refractive anomalies	14
Wounds and injuries	82
Gas	2
	276

This analysis refers only to men admitted between July 3, 1916, and May 25, 1917, the period during which beds were set apart for ophthalmic cases. In the preceding fourteen months these cases were not segregated, and many were undergoing treatment for diseases other than ophthalmic. They were not regarded purely as eye-cases and no special records were kept. Further, in these earlier months, and indeed throughout the entire period, men with affections of the lids and lacrymal apparatus, cornea, and iris were dealt with as out-patients. This practice had to be adopted as a measure of expediency, and explains why, out of a total of 6,765 in- and out-patients, only 276, or 4·03 per cent., received in-door treatment. It was a time of great pressure on the accommodation owing to the large convoys that were constantly arriving.

There is little to note in the first three groups of the above table. Only one case of gonorrhoeal infection of the conjunctiva was seen, contracted innocently by an N.C.O. who was splashed in the face with urine from a soldier whom he was attempting to restrain from making water in a hut. There was a small ulcer of the cornea and some iritis, but the eye was saved, and the vision of 6/18 had every prospect of improvement. The vision of the unaffected eye was normal.

At this time ruptures of the choroid had not made their appearance in the numbers that they did later on, only two being found in ward patients.

There were five cases of albuminuric retinitis, in one of which the visual defect was the first symptom. An effort was made to examine the nephritis cases in the medical wards, but constant pressure of work in the out-patient department prevented this being carried out as systematically as would have been desirable.

A case of brain tumour was admitted, having been sent up first as an out-patient, when double papilloedema was detected.

Under *Medical Examinations* came those cases on the medical side in which an ophthalmoscopic examination was requested.

The refraction anomalies occurred in men who had come from a distance and could not get back to their quarters the same night.

Wounds and Injuries were chiefly external injuries (28) and the same number applies to eyes excised before admission. Enucleation was performed in two cases, each of which had had an eyeball ruptured while the patient was on manoeuvres in the neighbourhood.

There were four cases of a foreign body located by X rays in the globe. Enucleation was performed in two; the third refused operation; and the fourth had vision of 6/9 in the injured eye. A fragment of copper from a detonator had penetrated the sclerotic and was clearly seen in the vitreous.

Cases requiring the magnet fortunately did not occur, there being no appliance of the kind at hand.

Out-Patients—Colchester

Affections of lids and lacrymal apparatus	407
Cornea	477
Iris and ciliary body	111
Lens	229
Vitreous	54
Choroid	230
Retina	78
Optic nerve	125
Medical examinations	160
Nystagmus	48
Anomalies of refraction	3446
Wounds and injuries	283
Examinations for commissions	166
No treatment necessary	627
Examinations not completed	48
Total new cases	6489
Further attendances for dressings, etc.	4200
Total	10689
Spectacles prescribed or ordered from A.S.D. ...	1078

From this table it will be seen that affections of the lids and lacrymal apparatus, cornea, and anomalies of refraction made up the bulk of the cases, while wounds formed a comparatively small group. Some explanation is provided by a consideration of the period under review. At its beginning, i.e., in May, 1915, the incessant demand for men no doubt relaxed or suspended the examination of the eyes, and men with chronic conditions of the lids and cornea, and others with extreme degrees of refractive errors, were enlisted. In addition to these, there were units composed of men who had seen service overseas and had been sent home on account of defective vision. Among them were Territorials who had volunteered early in the war; myopes and spectacle-wearers whose vision had not been severely tested; others were reservists whom the rigours of the first winter had broken down. These swelled the numbers of corneal nebulae (271), the varieties of cataract other than traumatic (see the table below), choroidal affections (200) and optic atrophy (75).

Affections of the Lens		
Congenital cataract	88	
Senile cataract	30	
Polar cataract	10	
Traumatic or concussion cataract	60	
Dislocation of lens	9	
Aphakia	32	
Total	229	Ratio 3·52 per cent.

Affections of the Choroid		
Choroiditis	93	
Choroiditis disseminata	25	
Choroiditis, degenerative ...	74	
Choroido-retinitis	8	
Albinism	2	
Rupture and trauma	28	
Total	230	Ratio 3·54 per cent.

Affections of the Retina		
Retinitis	9	
Retinitis pigmentosa	11	
Retinitis albuminurica	5	
Retinitis haemorrhagica... ...	5	
Detachment	35	
Concussion	13	
Total	78	Ratio 1·20 per cent.

Affections of the Optic Nerve

Optic neuritis	17	
Optic atrophy	75	
Toxic neuritis	14	
Embolism and thrombosis ...	1	
Congenital defects	18	
Total	125	Ratio 1·92 per cent.

Subjective and Central Defects and Medical Examinations comprised those cases in which the Medical Officers requested an ophthalmoscopic examination which might throw light upon the diagnosis.

The above lists established a strong presumption that permanent organic lesions had existed before enlistment, and emphasized the necessity of an ophthalmic examination in the case of all recruits whose distant vision was not better than 6/24.

Anomalies of refraction will be discussed as a whole along with those of the 2nd London General Hospital.

Reference, however, may be made to the number of cases of *Nystagmus*, which, in the four years under review, amounted to 87. It is questionable whether any military advantage is gained by the enlistment of men with so obvious, and in these instances, so incurable a defect, due in their case to pathological conditions and not to occupation.

Injuries—Colchester

External injuries...	80	
Irido-dialysis	3	
Optical iridectomy	5	
Traumatic paresis iridis	1	
F.B. and abrasions of cornea ...	39	
Wound of globe	12	
F.B. in globe	13	
Wound of orbit	10	
Phthisis bulbi	1	
Primary enucleation	7	
Previous „	112	
	283	Ratio 4·36 per cent.

The more severe of these were seen at out-lying Auxiliary Hospitals, and dealt with on the spot.

Previous enucleations were included for the reason that most of the sockets needed treatment of some kind, but cases requiring

extensive plastic operations did not attend. They were sent to Epsom, where also men were fitted with artificial eyes.

Bethnal Green Military Hospital

Cases seen from May 15, 1917, to September 27, 1917.

Affections of lids and lacrymal apparatus	7
Cornea	10
Iris and ciliary body	4
Lens	13
Vitreous	3
Choroid	19
Retina	19
Optic nerve	3
Medical examinations	31
Nystagmus	1
Anomalies of refraction	50
Wounds and injuries	30
Gas	44
Aneurism	1
No treatment necessary	16
Total	251

There was no established eye department here. The out-patients were men sent from Mile End Military Hospital for an opinion or treatment, or men on leave who strayed into the Military Hospital nearest their homes. The in-patients were attended to in the various wards, but no remarks are called for except in the case of those suffering from the effects of *gas*.

The reports that follow apply to all cases of this nature seen by the writer, irrespective of the hospital.

Report on Gas Cases

Bethnal Green.—Forty-four cases were reported by the Staff for special examination and treatment.

The dates when the men were affected ranged from July 10 to September 7, 1917. The place of origin was France. The gas was called indiscriminately "mustard" or "new" or "shell." In three instances the men could not give it a name.

The hour when the exposure occurred in most cases was between 11 p.m. and 3 a.m. Some men were asleep at the time and could not be warned. Two men were exposed at 5 p.m. and two between 8.30 and 9 p.m.

The mask was stated to have been worn at the moment of

exposure in 19 cases. In 22 cases it was not worn. In three the men could not say definitely whether it was on or off.

In two cases acute conjunctivitis set in immediately. From four to eight hours was the period that elapsed before the eyes became irritable with severe conjunctivitis, oedema of the lids, and photophobia. This condition—called by the men "complete blindness"—persisted for two to eight days, and when seen at Bethnal Green, it had reached the sub-acute stage. In most there was photophobia and lacrymation. In one case there were subconjunctival haemorrhages. In two the corneae were clouded. One of these was a man of 39 years of age in the R.E. Railways, and there was a suspicion of old keratitis which had been lit up by the irritation.

In the other—a syphilitic subject—there was choroiditis of old standing in one eye, with lental and vitreous opacities. He was admitted five days after being gassed, with much oedema of the lids and purulent conjunctivitis, which cleared up in 48 hours. The effects of gas, if gas was the cause, were not severe, for the man was able to tolerate repeated ophthalmoscopic examinations beginning a few days after admission. This circumstance, taken in conjunction with the rapid disappearance of the purulent conjunctivitis, seemed to indicate an element of artefact, which subsequently was proved to be present.

Styes developed in two cases in the same ward, possibly by secondary infection.

Owing to the cases being discharged to Auxiliary Hospitals as soon as they could be moved, many were lost sight of before a record of the vision could be taken and an ophthalmoscopic examination made. This however was done in 19 cases, but nothing abnormal was found beyond an occasional refractive error of low degree.

The iris was not involved in any case.

The treatment consisted of copious douches of a saturated solution of bicarbonate of soda or normal saline. On admission, this was followed by a drop of a 1 per cent. solution of atropin, and the routine practice was to use a weak solution of sulphate of zinc or of nitrate of silver as eye-drops as the individual case indicated.

Much relief was obtained from adrenalin, 1 in 1,000, and this instilled in the morning lasted throughout the day. No reaction was noted.

Chelsea.—The gas cases seen in the out-patient eye department at No. 2 London General Hospital from October, 1, 1917, to February 28, 1919, numbered 69 out of a total for the 17 months of 5,758 new cases. They were chiefly sent in from outside hospitals for suggestions as to treatment, and, with one or two exceptions, all were convalescent.

One man was sent in as a gas case, with no symptoms present. He was about to be discharged after three months in hospital for quite a trivial wound. An examination of his papers did not disclose anything about gas, but the word "gas" had been added to his Field Medical Card, in a handwriting and with a pencil quite different from those of the Medical Officer who signed it. There was nothing whatever the matter with his eyes, and the inference was that this part of the diagnosis was his own.

It is difficult to discriminate between a pure gas conjunctivitis and one that is an artefact when the convalescent stage is reached. A man may deliberately expose himself by discarding his mask in the dark. On inquiry it was found that some preferred to take their chance unprotected, as they said the apparatus prevented their seeing where they were going. They complained that they were rendered blindfold at critical moments by mud or wet on the eye-pieces, or by condensation on their spectacles if they were wearing them.

"Moral suasion" was effective in some cases, and the peremptory order to remove goggles or eye-shade, delivered when least it was expected, sometimes was the turning-point in chronic cases.

Report of the work of the ophthalmic out-patient department and Ophthalmic Centre, No. 44, 2nd London General Hospital, Chelsea, from October 1, 1917, to February 28, 1919.

The sphere of the Department comprised the whole area of the London District, extending from Purfleet to Richmond, and including the Guards' Depôts at Windsor and Caterham.

Walking cases were sent up for an opinion from Bethnal Green, Mile End, Hampstead, Tooting, Fulham, Springfield, Richmond Park, Dollis Hill, and other Military Hospitals, while Wimbledon Camp and the various scattered centres of the R.A.S.C. and Labour Centres provided considerable numbers.

Cot cases were seen when necessary at Bethnal Green Military Hospital, and at the Prince of Wales's Hospital for Officers.

Candidates for Woolwich and Sandhurst were tested from time to time, and a large number of examinations were carried out on the Medical Appeal Board for Officers at Adastral House.

The entire work of the out-patient department was under my charge between the above dates.

For statistical purposes the end of February was fixed as the termination of the period, demobilization of the ophthalmic section of the Hospital having begun on March 1. After that date some cases were still seen there, but these have been included in the return for Denmark Hill, which took over the Chelsea Ophthalmic Centre.

Summary of Out-door Cases.—Chelsea*

Affections of lids and lacrymal apparatus	260
Cornea	365
Iris and ciliary body	106
Lens	235
Vitreous	92
Choroid	263
Retina	118
Optic nerve	89
Subjective and central defects	29
Medical examinations	122
Nystagmus	35
Anomalies of refraction	2,072
Injuries	177
Enucleations	1,132
Gas	69
Aneurism	1
Exostosis	1
No treatment necessary	592
Total new cases	5,758
Second and further attendances	1,642
Grand total	7,400
Spectacles ordered	1,290
Artificial eyes issued	1,367

Under *Cornea* the number of cases of nebulae was 230 or 3.99 per cent. of the total new cases.

Affections of Lids, Lacrymal Apparatus, Iris, and Ciliary Body do not call for special remark.

* The figures for the months of October, November, and December, 1917, in the table below were included in the return for the 39 months mentioned on page 5 of *Statistical Reports*, No. 3, "Analysis of 8,670 Ophthalmic cases, etc.," dated January, 1919. But in spite of this overlapping, the total figures during the period when I was at Chelsea, viz., from October 1, 1917 to February 28, 1919 are given, as the present Report deals with my personal experience of ophthalmology in the Army, without reference to any particular hospitals.

Details of Affections of the Lens

Congenital cataract	80	
Senile	11	
Polar	7	
Traumatic and concussion ...	88	
Dislocation of lens	3	
Aphakia	46	
Total	235	Ratio 4.08 per cent.

The numbers under *Traumatic Cataract* and *Aphakia* refer to cases sent in for an opinion and report, and not to any extent to cases in the wards of the Hospital.

Details of Affections of the Choroid

Choroiditis	61	
„ disseminata	19	
„ degenerative ...	89	
Choroido-retinitis	20	
Rupture and trauma	74	
Total	263	Ratio 4.56 per cent.

There were a few cases of *Choroiditis* seen soon after dimness of vision was complained of, probably due to tubercle. The cases of degeneration were for the most part extreme degrees of myopia in which glasses had never been worn. The comparatively large number of traumatic cases indicates the stage that the War had reached. Several dated back to 1915 and were found in men who had continued in the Army.

Details of Affections of the Retina

Retinitis	17	
„ pigmentosa	19	
„ albuminurica	2	
„ haemorrhagica... ...	2	
Detachment of retina	46	
Concussion „	32	
Total	118	Ratio 2.04 per cent.

Several of the cases of *Detachment* could not be assigned to any cause, but the majority and the instances of *Concussion* were referable to wounds received in the War.

Details of Affections of the Optic Nerve

Optic neuritis	14	
„ atrophy	34	
Toxic neuritis	9	
Embolism and thrombosis ...	3	
Congenital defects	29	
Total	89	Ratio 1.54 per cent.

These cases were relatively fewer than might have been expected, but the probability is that they, and others of a similar kind, had already been weeded out of the Army. Compare the numbers noted at Colchester.

The *Congenital Defects* were for the most part opaque nerve fibres, and there were two or three cases of "holes" on the disc.

Subjective and Central Defects and *Medical Examinations* included those cases sent in for an ophthalmoscopic examination and report. When anything abnormal was discovered in the latter group, it was classed under the ophthalmological heading to which it belonged.

Nystagmus has already been commented upon.

It is convenient to take *Anomalies of Refraction* noted at Colchester along with those of Chelsea, for reference has to be made to each as an ophthalmic centre. The cases fall into two divisions as the following tables show.

Anomalies of Vision, Symptomatic, Mechanical, and Motor

	Colchester.	Chelsea.
Ciliary spasm	12	5
Asthenopia	38	35
Amblyopia in one eye	159	167
Strabismus	146	79
Total	355	286

Uncomplicated Refractive Errors

	Colchester.		Chelsea.	
H. and H.As....	861	Ratio 13·26	394	Ratio 6·84
M. and M.As.	1,927	29·69	923	16·03
Mixed As. ...	156	2·40	158	2·74
Presbyopia ...	147	2·26	311	5·40
Totals...	3,091	47·61	1,786	31·01

The ratio is calculated on the total number of new cases at each hospital.

These cases cover two distinct periods: (1) that which preceded the establishment of the Army Spectacle Depot, i.e., up to March, 1916, and (2) the period that followed, which again is subdivided into (*a*) the period during which the strength of glasses issuable was strictly limited, and (*b*) the subsequent period when these limits were extended, to the material advantage of the soldier and in no less degree to that of the ophthalmologist. The authority for this extension was A.C.I. 1371, dated September 6, 1917, with an additional amendment, A.C.I. 654, dated June 11, 1918.

In the period immediately preceding the creation of the A.S.D., i.e., before March, 1916, the machinery in existence for the supply of glasses consisted of oval frames and loose spherical lenses, the glazing and fitting being carried out in the Department.

When the A.S.D. came on the scene, matters improved, and cylinders could be prescribed; but the limits in the strength of glasses issuable tied the hands of the ophthalmic surgeon.

With the ultimate extension of the limit no correction in reason was refused, provided that it made the patient efficient for military purposes, the only ground to justify the issue of spectacles.

The comparative tables of the refractions at Colchester and Chelsea are significant. The ratios show that in the Chelsea period the cases of hypermetropia, with or without astigmatism, and myopia, with or without astigmatism, had diminished by one-half; that mixed astigmatism remained about constant; but that presbyopia had more than doubled. These results can be interpreted in various ways.

(1) In the earlier period men with refractive errors requiring correction for military purposes were enlisted without much regard for their visual acuity.

(2) The absence of facilities for providing cylinders up to March, 1916, brought to notice a large number of men who had never worn glasses, and who had failed in musketry.

(3) The constitution of the Army, under varying conditions of enlistment, may also afford some explanation.

(4) The establishment of Ophthalmic Centres and the issue of spectacles to men already in the Army, gradually reduced the number of men requiring to be provided, while a fair proportion of young recruits had already obtained glasses for their civil occupations.

(5) The increase in presbyopia is accounted for by the fact that middle-aged men in the Army had grown older, and also by the raising of the military age for home service.

Spectacles ordered or prescribed

Colchester	...	1078	Ratio	16·61 per cent.
Chelsea	...	1290	„	22·40 per cent.

These ratios may be lower than those of other Ophthalmic Centres, but as an ophthalmoscopic examination was made in every case, many pathological conditions, hitherto unsuspected, were discovered. The low ratio at Colchester is due to the absence of the facilities which were provided by the A.S.D. at a later date, and partly to the strength of the glasses.

The *Injuries* recorded numbered 177, or 3·07 of the new cases. They were chiefly of a minor character, the more serious cases being dealt with in another department.

Enucleations are included for the reason that it would have complicated the returns to have made a change in the system of statistics employed from the beginning. Many of the men came for treatment of the remaining eye, and a note was made of peculiarities or defects of the socket for reference afterwards.

Artificial Eyes issued numbered 1,367, a large increase having taken place when the Centre was extended to issue these appliances. Breakages were incessant, and in one month amounted to 30 per cent. of the month's total. Cases in which no treatment was necessary were those of men who had become alarmed because of some imaginary or trifling defect, and only wanted reassuring, or who did not require glasses for military purposes. Under this heading, also, were men with good vision, sent up for an opinion by Travelling Medical Boards. A complete examination of necessity was made in every instance.

Denmark Hill.—Although the 2nd London General Hospital was officially closed on February 28, 1919, a number of casual ophthalmic cases attended during the greater part of March, and 38 artificial eyes were issued. These cases are included for convenience in the figures for the 4th London General Hospital, Denmark Hill, to which I was attached for duty till the end of April, when I concluded my fourth year of service.

Chelsea (March) and Denmark Hill (April, 1919)

Affections of lids and lacrymal apparatus	24
Cornea	38
Iris	5
Lens	9
Vitreous	2
Choroid	16
Retina	10
Optic nerve	7
Subjective and central defects	7
Medical examinations	10
Nystagmus	3
Anomalies of refraction	108

Wounds and injuries	118
No treatment necessary	52
Total new cases	409
Spectacles ordered	54
Artificial eyes issued	102

Final Summary—Four Years

		Ratio.
Affections of lids and lacrymal apparatus	763	5·79
Cornea	924	7·01
Iris	238	1·81
Lens	494	3·75
Vitreous	156	1·18
Choroid	531	4·03
Retina	237	1·81
Optic nerve	227	1·72
Subjective and central defects	111	0·84
Medical examinations	282	2·14
Nystagmus	87	0·66
Anomalies of vision, amblyopia, etc. ...	677	5·13
Refractive errors	5013	38·03
Wounds and injuries	1822	13·83
Gas	115	0·86
Aneurism	2	0·02
Exostosis	1	
Examinations for commissions	166	1·26
No treatment necessary	1289	9·77
Examinations incomplete	48	0·36
Total new cases	13183	100·00
Other attendances	5842	
Grand total	19025	
Spectacles prescribed	2422	18·37
Artificial eyes issued	1469	

In the above table the ratios are those of the new cases and not of the grand total, and this remark applies similarly to the spectacles prescribed.

Here, also, a distinction was drawn between uncomplicated refractive errors, and symptomatic, mechanical, and motor anomalies of vision.

SUPPURATION AFTER CATARACT EXTRACTION SUCCESSFULLY TREATED

BY

E. W. WOOD WHITE and T. HARRISON BUTLER,

BIRMINGHAM. COVENTRY.

IT is only rarely that an eye which has definitely commenced to suppurate after a cataract operation can be saved, and we therefore feel that the following example should be placed on record.

E. H., aged 32 years, was admitted to the Birmingham Eye Hospital, and on April 17, 1917, the right lens was extracted by the combined operation. The patient squeezed badly and vitreous was lost. At the first dressing the eye was somewhat injected, and in spite of treatment this increased. On April 28 there was a line of pus along the lips of the incision, and a mass of septic exudate was seen leading from the wound well into the anterior chamber. An anaesthetic was administered and the wound thoroughly cauterized with the actual cautery. The hot wire was drawn along the line of the section and allowed to burn well into the anterior chamber till the aqueous was evacuated; it was used in the most drastic fashion. A sub-conjunctival injection of oxy-cyanide of mercury of the strength of 1 : 5,000 was given, and 10 cubic centimetres of anti-streptococcal serum was injected under the skin of the abdomen. A culture was made from the lips of the incision and a pure growth of pneumococci was obtained.

The effect of this treatment was almost magical, and in a few days the eye was out of danger.

On September 29, the eye was examined and found to be free from any injection. The upper segment of the cornea showed a dense nebula like an exaggerated arcus senilis. There were some fine posterior synechiae and a dense capsule.

Eventually the capsule was needled and an acuity of 6/18 was obtained. In January, 1918, the left lens was extracted. Again the patient squeezed badly and vitreous presented. The lens was removed with the spoon, and more vitreous escaped. In spite of these drawbacks the ultimate vision was 6/18.

This case shows that it is always worth while to treat such a case however hopeless it may appear to be ; but we think that to be of any value the actual cautery must be employed with energy.

A CASE OF UNUSUALLY EXTENSIVE RUPTURE OF THE CORNEO-SCLERAL MARGIN

BY

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THE following case is worthy of note, in so far as the extent of the injury is greater than usual and than has been hitherto described.

J. McP., a farm worker, was struck on the right eye by a cow's horn, and was sent to the Glasgow Eye Infirmary at once. It was found that he had a large rupture of the corneo-scleral margin, and that the eye had no perception of light.

A few days were allowed to elapse, as there had been extensive haemorrhage into the orbit, and the eye was excised six days after the injury.

The eye was examined, and found to be in a very collapsed condition, all the normal contents having been either extruded or so much displaced and damaged that the eye was manifestly useless. The cornea was found to be hanging by a comparatively narrow portion of the lower margin, and free all round elsewhere. Measurements were carefully made, and it was found that the corneal diameter is 13·5 mm. The arc of detachment is external, superior, and internal, and the arc of remaining attachment, which only measures 9·5 mm., is situated at the lower and inner part. As the circumference of the cornea is approximately 40·8 mm., the extent of the rupture is greater than three-quarters of the corneal circumference. The rupture is smoothly and cleanly defined as if made by a punch, and is situated at a distance not more than 1 mm. from the apparent corneo-scleral margin. It is probable that the rupture has been made by a combination of direct and indirect violence.

This is by far the largest rupture which has ever come to my notice, as a rupture of even half the extent of the corneal circumference is very rare. Few writers say much regarding the extent of ruptures of the sclera, but Praun (of Darmstadt) mentions that they may be as large as half the corneal circumference.

CAUSES OF NON-TRACHOMATOUS OPHTHALMIA IN EGYPT

BY

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IN a communication to the Ophthalmological Society of the United Kingdom, Session 1917-1918, I reported certain observations on the relation between the varieties of conjunctivitis and the average climatic temperature. Similar observations have been regularly made and published in the Annual Reports of the Egyptian Ophthalmic Hospitals since the year 1912.

We have found that the number of new patients who present themselves for treatment is very much greater in the summer than in the winter. This may be due to some extent to the shorter days of winter giving less time for those who come from a distance to go to and come from the hospital, and to the condition of the roads during rainy weather preventing travelling, but is mainly due to the increased amount of communicable eye disease, that is acute conjunctivitis, during the summer months. We have previously shown that neither atmospheric humidity nor variations in the level of the Nile bear any relation to this increased incidence of conjunctivitis. The following table shows the number of patients seeking treatment in each month of the year.

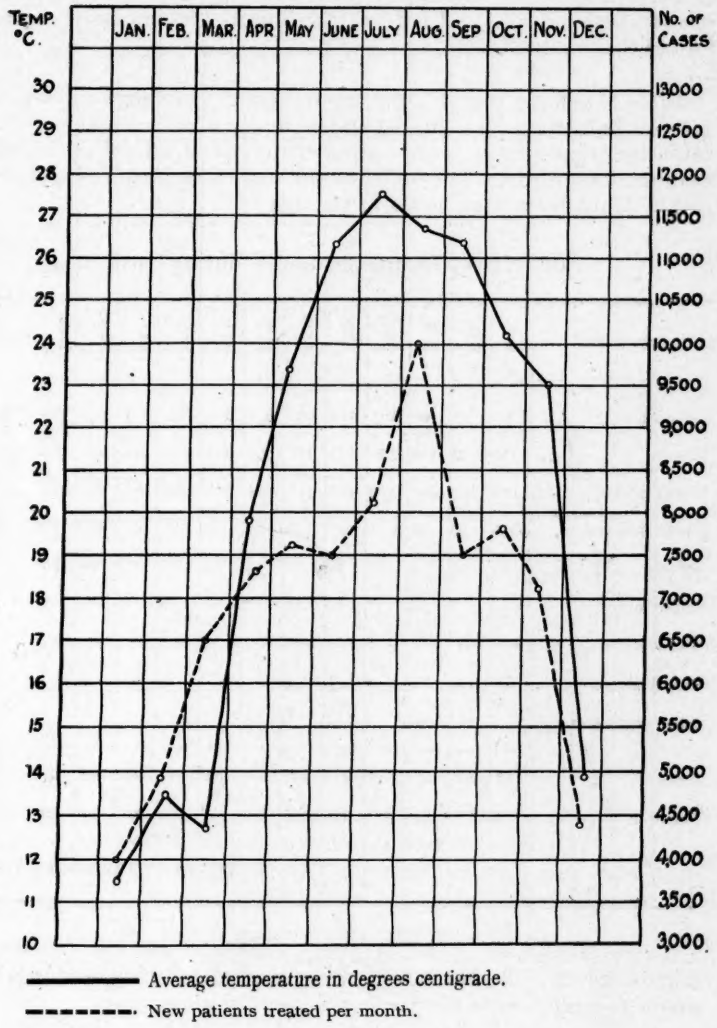
Table I.—New patients treated per month

January	3,954
February	4,648
March	6,511
April	7,288
May	7,583
June	7,503
July	8,181
August	9,980
September	7,494
October	7,782
November	7,115
December	4,277
Total	82,316

Table II exhibits the relation between the average atmospheric temperature and the number of new patients treated per month. The average temperature is obtained by taking two places in Lower Egypt, Qurashia and Zagazig, and two places in Upper Egypt,

Beni Suef and Assiut, and obtaining an average figure from the mean temperature at each place on the 1st and 16th of each month. This average temperature is supplied by the kindness of the Director General of the Meteorological Department.

Table II.—Temperature and number of patients treated



While in December and January the new patients are about 4,000 or 5,000 per month, in August they number 10,000. The increase begins in the spring of each year about the same time as the rise in the average temperature; this was more marked in our records for 1917 than in the accompanying curve for 1918.

It is seen that the general trend of the two curves is very similar and it is impossible to resist the impression that there is a definite relation between rises and falls of temperature and increased desire for ophthalmic treatment.

Table III shows that 11,500 microscopical examinations with a 1/12 oil immersion lens showed the presence of one or other of the causative organisms of acute conjunctivitis out of a total of 13,500 examinations made. The number per month varying from about 300 in January to about 1,600 in October.

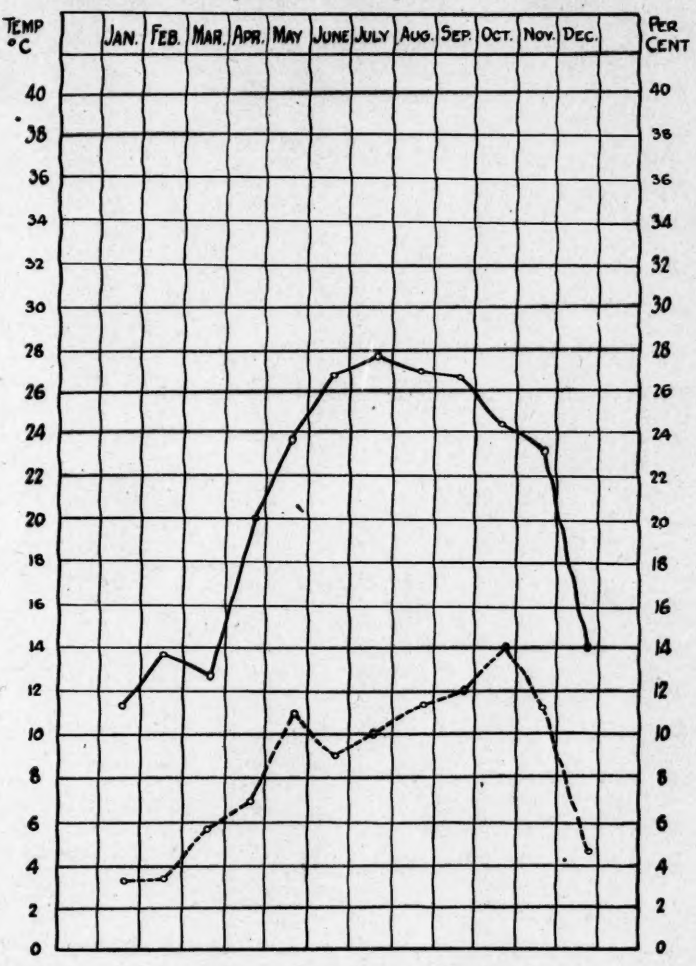
Table III.—Organisms found during 1918

Organisms.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Gonococcus ...	66	61	63	101	416	410	604	669	794	1003	825	270	5282
Weeks	51	70	198	390	503	377	263	352	284	342	269	120	3219
Morax or Diplo-bacillus	181	225	344	185	253	141	184	207	198	165	118	74	2275
Pneumococcus ...	17	12	23	35	27	28	29	23	48	43	63	30	378
Xerosis	11	3	8	11	21	29	18	20	17	12	14	15	179
Staphylococcus ...	1	1	7	3	11	5	8	8	6	6	7	1	64
Micrococcus ...	—	—	—	1	4	—	—	3	—	—	—	—	8
Streptococcus ...	—	—	3	3	1	1	—	—	3	—	1	3	15
Other organisms ...	7	2	17	7	12	6	15	8	7	9	2	1	93
Total	334	374	663	736	1248	997	1121	1290	1357	1580	1299	514	11513
Negative	68	79	139	169	259	189	194	227	212	209	225	101	2071
Grand total ...	402	453	802	905	1507	1186	1315	1517	1569	1789	1524	615	13584

As practically all cases of acute conjunctivitis are examined microscopically, the number of microscopical examinations bears a pretty fair relation to the amount of acute conjunctivitis.

Table IV exhibits the monthly percentage of organisms found in the various months of the year, the curve for which is seen to rise shortly subsequent to the rise of temperature and favours the conclusion that the main increase in the number of patients is due to the increased prevalence of acute conjunctivitis.

Table IV.—Temperature and positive examinations

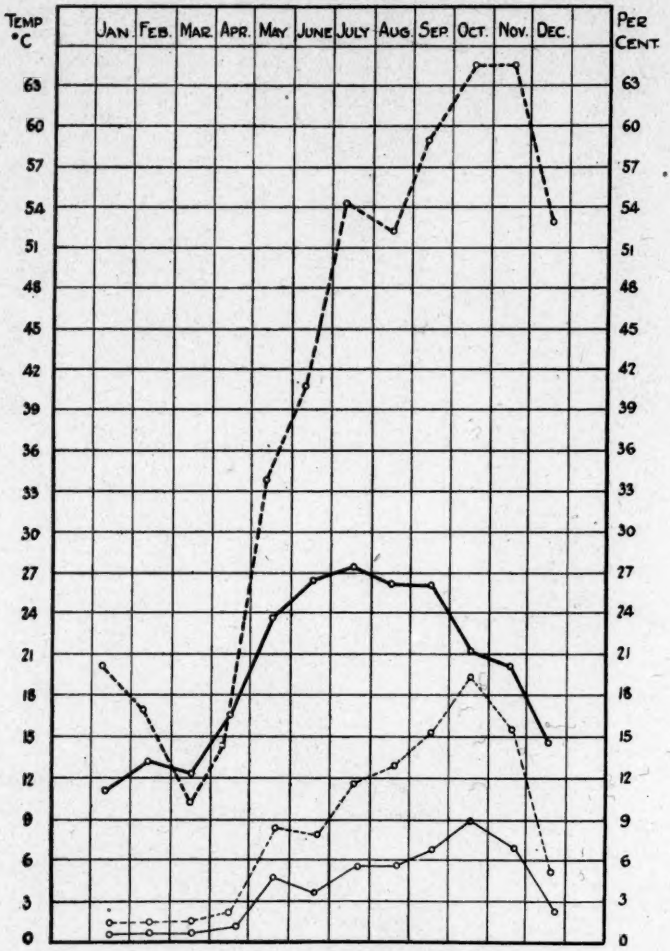


Average temperature in degrees centigrade.

Percentage monthly of positive examinations on total of all micro-organisms found during 1918.

Table V shows the relations of the gonococcus to the temperature, while Table VI does the same for the Weeks bacillus, and Table VII for the Morax bacillus.

Table V.—Temperature and gonococcus



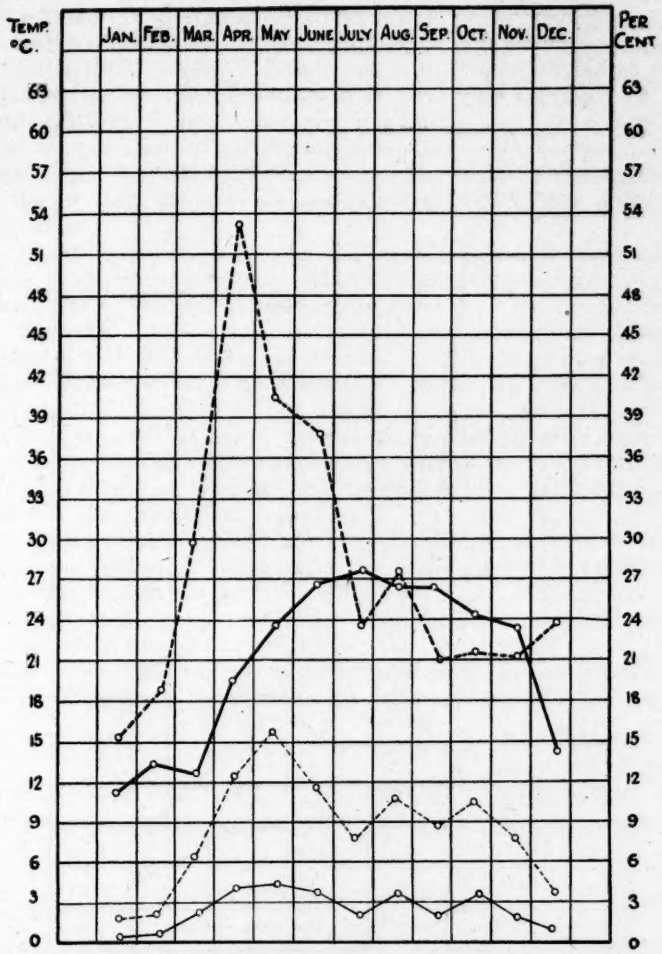
Average temperature in degrees centigrade.

Percentage of gonococcal findings on monthly total of all micro-organisms found.

Monthly percentage of gonococcal findings on total of all micro-organisms found during the year.

Monthly percentage of gonococcal findings on total gonococcal findings during the year.

Table VI.—Temperature and Weeks Bacillus



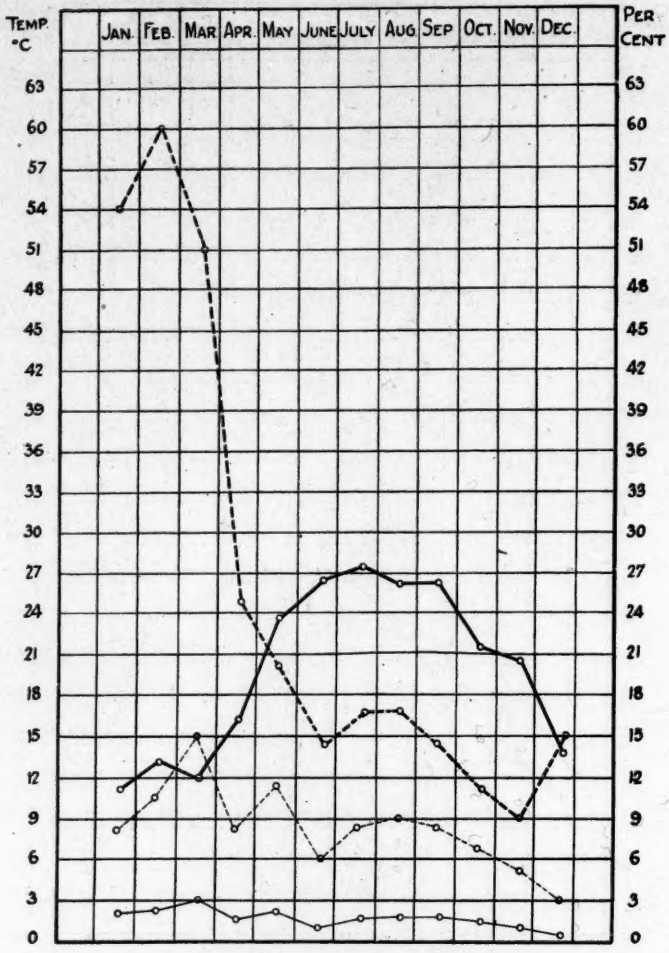
——— Average temperature in degrees centigrade.

– – – – – Percentage of Weeks bacillus finding on monthly totals of micro-organisms.

———— Percentage of Weeks bacillus findings on total of all micro-organisms found during the year.

- - - - - - - Monthly percentage of Weeks bacillus on total Weeks bacillus finding during the year.

Table VII.—Temperature and Morax's Bacillus



Average temperature in degrees centigrade.

Percentage of Morax bacillus finding on monthly totals of micro-organisms found.

Percentage of Morax bacillus on total of all micro-organisms found during the year.

Monthly percentage of Morax bacillus on total Morax bacillus findings during the year.

In each case (*a*) table exhibits the average temperature. The (*b*) table exhibits the monthly percentage of a particular organism on the monthly total of all micro-organisms found; that is to say, it shows what frequency the particular organism exhibits as compared with the total number of micro-organisms found. The (*c*) table exhibits the monthly percentage of a particular organism on the total of all micro-organisms found during the year; that is to say, it shows the seasonal variation as compared with all other micro-organisms. The (*d*) table shows in another form to that exhibited in the (*e*) table the varying seasonal incidence of the particular organism.

The gonococcus is seen to be the main cause of the increase of acute cases of conjunctivitis (Table V), and the increases appear subsequent to the rise of temperature, although the upward trend of the gonococcal curve continues disproportionately long as compared with that of the temperature; also the maximum amount of gonococcal conjunctivitis is found in October, while the maximum temperature is reached in July.

The conjunctivitis due to the Weeks' bacillus certainly increases with the spring rise in the temperature, but its maximum incidence is found in April or May and not in October as we have seen is the case with the gonococcus.

Conjunctivitis due to the Morax bacillus does not vary so much during the year in its incidence as the above-mentioned organisms. It is, however, somewhat more prevalent in the early part of the year, and comparatively to the other organisms, as seen in Table VII, is much more frequent at this time.

The conclusions arrived at from these curves are not materially different from those published in my previous reports.

EYE SYMPTOMS AS THE ONLY INDICATION OF FRACTURED BASE OF THE SKULL

BY

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EVERY ophthalmic surgeon has met with patients in whom eye symptoms formed part and parcel of those which, taken as a whole, indicate a fractured base of the skull. The object of the present communication is to draw attention to a group of cases in which the injury to the skull is shown exclusively or chiefly by the appearances of the eyes in conjunction with the history. My meaning may be rendered clearer by a perusal of the following four cases, from which care has been taken to exclude any direct injury of the eyes

themselves. It may be urged as telling against the acceptance of my interpretation that the patients recovered from the injury. This objection would have had more weight once than it has nowadays.* Apart from many cases in which all the symptoms of fractured base existed and yet did not prove fatal there is abundant anatomical proof that such fractures are susceptible of union. For example, T. Holmes[1] gives illustrations of united fracture of each of the fossae of the base of the skull obtained from patients who died from other causes. If my views be correct it is important that this group of cases should be recognized by ophthalmologists under whose observation they naturally come.

1.—*Direct injury to the vault of the skull followed by extensive subconjunctival ecchymosis.*

A cabdriver, aged 27 years, came under my notice with an extensive subconjunctival ecchymosis involving chiefly the lower part of the right eye. The posterior limits of the effusion could not be defined. A line of ecchymosis was also present beneath the skin of the inner part of the lower eyelid. V. was 6/6, and the fundi were normal. The patient affirmed that he first noticed the appearance of the right eye (which had become worse since) four days after he had been thrown upon the right side of his head from the seat of his hansom, and in confirmation of his statement there was an extensive bruise of the right parietal region. After the accident he felt dazed for a time but retained consciousness, and there was no bleeding from the ear, nose, or mouth. He complained, however, of continuous headache. The patient made a good recovery after about three weeks' rest in bed. Despite the absence of general symptoms I felt justified in diagnosing a fracture of the anterior fossa of the base of the skull.

2.—*Retinal haemorrhages in one eye with history of a recent injury to the vault of the skull.*

A man of 24, a clerk in a shipping office, came for advice on account of his eyes which he said ached after work. The underlying condition, one of slight hypermetropic astigmatism, was estimated while the eyes were under the influence of homatropin and cocain. During the course of the routine examination it was found that the fundus of the right eye was bespattered with retinal haemorrhages, many of a flame-like appearance. The man looked in good health and no obvious cause could be found to account for the retinal changes. A medical colleague (the late Dr. G. W. F. Macnaughton) reported that the patient's cardio-vascular and renal systems showed no departure from normal. Further enquiries

* The mortality from fractured base in English practice is probably under 50 per cent. (*An Index of Prognosis*, edited by A. Rendle Short, 1918, p. 313).

brought out the fact that about a fortnight previously the man had sustained a severe blow from a fist upon the right side of the forehead in the course of a drunken brawl. The retinal haemorrhages were slowly absorbed.

3.—*Paresis of one external rectus and atrophy of the optic disc on the same side following a fall upon the forehead.*

A lad of 7 years was seen at the Queen's Hospital for Children on April 22, 1909. The left eye was convergent 25° and the outward excursion of that eye was somewhat reduced. V.=p.l. The pupil was dilated and sluggish to light. The optic disc was white and sharply defined and the retinal vessels, as compared with those of the other eye, were small, but there was no ophthalmoscopic evidence of antecedent neuritis. The defect in sight of the right eye (V. 6/12) was due to an error of refraction, and the optic disc of that eye showed no morbid changes. The functions of the facial nerves were unimpaired. The history was to the effect that about two months previously, while running in a dark passage, the lad stumbled and fell heavily upon his forehead. The skin was grazed, but he did not lose consciousness, and as no immediate symptoms followed the fall, not much importance was attached to the matter by the parents. Some days afterwards (it might have been a fortnight, the mother thought) the left eye was noticed to turn inwards. When the patient was seen some months later the eye conditions were found to have undergone no change.

4.—*Paresis of the right external rectus after a blow upon the right temple; operation; recovery of binocular vision.*

A boy, aged 16½ years, while stooping under a marble top table, raised his head suddenly, and in doing so struck his right temple sharply against the corner of the table. He did not lose consciousness, and the accident was not followed by the escape of fluid from ear or nose. Four days later the right eye was observed to turn inwards. When I saw the lad, eight days after the injury, there was paresis of the right external rectus with convergence of the affected eye and homonymous diplopia, increased on attempting to look towards the right. The fundi were normal. The condition was treated with ascending doses of potassium iodide for upwards of a year without benefit. The diplopia was not always present but usually came on several times a day. Seventeen months after the accident the affected eye was convergent, 12° to 15°; abduction could be carried out until the external margin of the cornea was almost in contact with the outer canthus; and diplopia was present only on turning the eyes to the right. I suggested that operation might be useful, and advised that Mr. W. T. Lister's opinion be taken on the point. That gentleman agreed that operation would

be likely to improve the patient's appearance, but after investigating the condition of binocular vision with the amblyoscope, he thought that it might be followed by a very troublesome diplopia. In deference to his views I waited for upwards of a year but then, as the squint was increasing and the patient was much troubled with diplopia, I divided the right internal rectus and shortened the right external rectus and its overlying conjunctiva. As a result the eyes became straight and no further complaints were made of double sight. In fact, binocular vision was regained. The patient entered the Army as a private at the beginning of the war and is now serving in Salonika with the rank of captain. I saw him recently (August 15, 1918), and he made no complaint of his eyes.

Remarks.

Cases similar to No. 3, where a blow upon or a wound of the forehead is followed by a defect in sight, were known to Hippocrates,[2] and discussed by many of the earlier writers, as Sabatier[3] (1791), Beer[4] (1813), Wardrop[5] (1818), Mackenzie[6] (1830), and Walther (1840), to name only a few among many. The prevalent view was that in such cases an injury of the fifth pair acted sympathetically through the medium of the nasal branch. Mackenzie[6] evidently doubted the truth of this explanation, and suspected that the injury had been responsible for a concussion of the eyeball or that it had excited disease within the cranium. At the same time he devoted a section of his famous book to a description of cases of "Amaurosis from morbid changes of the fifth pair of nerves." I need scarcely remind readers that in most instances fractures of the base of the skull are caused by indirect violence, and are in fact extensions downwards of fractures of the vault, such as may be assumed to have taken place in all my cases. The majority of these fissures pass through the middle fossa (in upwards of 82 per cent. in Hewett's[9] analysis of 64 cases of fractured base). It was shown by the researches of Hölder[10] how often these fractures involve the walls of the orbit. Thus, of 86 fractures of the base following shot-wounds of or falls upon the head, no fewer than 53 cases, or 61 per cent., presented a fracture of the orbital roof as well.* In many of these cases the optic foramen was involved. It was suggested by Berlin[11] that the blindness consequent upon injuries of the forehead was caused by fracture of the optic foramen, whereby the optic nerve was directly injured.

As to paralysis of the muscles of the eye following fracture of the base of the skull, it will be noted that in two of the cases I report

*Hölder's observations on this point were forestalled by those of Prescott Hewett[9], who wrote in 1853—that is, 27 years before Hölder's were published[10]. Hewett showed that of 68 cases of fracture of the base of the skull examined after death, the upper wall of the orbit was more or less extensively broken in 23, or about one-third.

(Nos. 2 and 4) the sixth nerve was involved. This agrees with the common experience of such cases. It was pointed out by Panas[12] that this nerve is particularly liable to suffer in such injuries, since in part of its intracranial course it lies close to the apex of the petrous bone, and is accordingly apt to be damaged by fractures involving that part, a common event in fractures of the base. The point was also elaborated by Chevallereau, a pupil of Panas. Paralysis of the sixth nerve may follow the injury at once, or it may be delayed for a longer or shorter time. In the former case we may assume damage from splintered bone, and in the latter from the pressure exerted by blood-clot or callus. Paralysis of the sixth nerve appears to be commonly permanent. In cases described by Le Roux[13] and Mardellis[14] respectively, however, the condition underwent spontaneous cure.

It seems clear from a perusal of Panas's several communications[15], [16], [17], that he recognized that a fractured base might be manifested by paralysis of the sixth nerve alone.

With regard to retinal haemorrhages, such as were present in case 2, it has been shown by R. A. Fleming[18] that they are common when a fractured base is associated with much subarachnoid bleeding, and that when the latter is one-sided there is usually haemorrhage into one retina alone. Fleming regards the retinal lesions as of considerable value in the diagnosis of fractured base.

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ANNOTATIONS

Standards of Vision

Readers will be interested to have before them the latest standards of vision for candidates wishful to enter the Royal Air Force or the Army as officers.

ARMY

Officers (Permanent, Temporary, Special Reserve, and T.F.)

(I) A candidate for a commission will be considered fit if his vision without the aid of glasses is not less than 6/60 with each eye, provided that with the aid of glasses, if necessary, his vision is not less than 6/9 in one eye (R. or L.) and 6/18 in the other.

(II) A candidate for a commission will be considered fit if he has one eye (R. or L.) with vision of not less than 2/60, and with a good field of vision as tested by hand movements, provided that his vision in the other eye is 6/6, or not less than 6/12 without glasses and capable of correction to 6/6 with the aid of glasses.

ROYAL AIR FORCE

(*a*) Distant vision either eye, V. 6/6. Latent hypermetropia of 2D. or more shall disqualify.

(*b*) Both eyes must have good fields of vision as tested by hand movements.

(*c*) Good binocular fusion and balance of the eye muscles.

(*d*) Normal colour vision according to Board of Trade standards.

We do not hesitate to characterize the Army standards set forth above, which are intended for boys entering at Sandhurst or Woolwich with a view to a career in the Army, as hopelessly inadequate, and as comparing very badly with the standards of the Royal Air Force.

The Eyes of Naval Signalmen

Dr. Alexander Duane made some valuable observations upon the eyes of the naval signalmen at the June meeting of the American Ophthalmological Society (*American Journal of Ophthalmology*, August, 1919). His remarks were based upon two years' experience in charge of the signal bridge of a United States warship. During that period Duane tested practically the ability of some two hundred men in working and reading signals. One hundred of the men served on the bridge under his direct supervision. It appears that a signalman must be able to recognise the meaning of more than two hundred flags. Flags are recognised by (*a*) shape, (*b*) colour, and (*c*) situation. The main point of distinction should be colour, but the colours themselves leave much to be desired.

In American flags, even when new, the blue is much too dark, and the red soon becomes dingy. The seriousness of faulty colouration in a flag will be at once apparent when it is realised that flag signals are intended to be read instantaneously. The author groups the conditions affecting the visibility of signals as follows: 1. Distance. 2. Illumination and background. 3. Atmospheric conditions. 4. Wind. 5. Motion of the ship. 6. Faulty technic. 7. Use of binoculars and telescopes. As to the visual requirements of the signalmen, the visual acuity is not the most important, at least, as we test it with charts. At the same time a signalman's sight must be good. If, in selected cases, men with glasses be allowed to serve on the bridge, Duane believes that the vision with the help of glasses should not be less than 20/20 in each eye, and that it might even be advisable to require 20/15 in at least one eye. Duane points out the many inconveniences of wearing glasses in such an occupation. For example, they produce disturbing reflections; they readily become dimmed with moisture and marked with grease; and, even when clean, cut off enough light to render the recognition of faint distant objects more difficult. The improvement produced by glasses in distant vision is not at all comparable with that obtained with the same glasses when looking at an object at twenty feet. In Duane's own case his sight with glasses is 20/20 and without them about 20/40. Yet he can make out far away flags, etc., almost, if not quite, as well without as with his glasses. The author would always consider the ocular requirements for signal work in connection with a man's mental and moral make-up and his reaction-time, together with his general physical condition. It is proposed to place candidates not immediately rejected in a probationary signal class, where the cause of their defective sight could be ascertained, and, if due to an error of refraction, corrected. The better of these men would be admitted to the bridge, even if their vision were not up to the full standard. On the other hand, even if he had perfect sight, etc., Duane would not have on the bridge a man who showed while on probation that he was erratic or quarrelsome, was untrustworthy, or who carried out his duties carelessly or perfunctorily.

A Theory of Vision

The following is taken from *The Times* report of the recent meeting of the British Association at Bournemouth:

> Sir Oliver Lodge, speaking in the Mathematical Science Section on a possible theory of vision, suggested that in the retina of the eye there were certain atoms, perhaps in the black pigment, which were stimulated into radio-activity by the impact of waves of light of luminous frequency. But these

atoms when they received these waves, after accumulating energy of the right frequency, flung it away in a minute fraction of a second and thereby stimulated the nerves. The stimulation was much greater than the light which fell upon the eye, which was marvellously sensitive to light, but to no other kind of vibration. He would like an experiment to be made with the retina of an eye, if such experiment were possible with a dead eye. He would like to put the retina on an electroscope, then illuminate with red, green, or violet light, to see whether it would shoot off electrons and stimulate the electroscope. It would be a very delicate experiment, but they had very delicate instruments now.

The Ophthalmic Service in the American Expeditionary Forces

An authoritative history of the ophthalmic service in the American Expeditionary Forces was presented to the Section on Ophthalmology of the American Medical Association, by Dr. Allen Greenwood, senior consultant, on June 11, 1919 (See *Amer. Jl. Ophthal.*, August, 1919.) It forms instructive and interesting reading. Dr. Greenwood was appointed senior consultant in ophthalmology in May, 1918, and in that month and the following he visited many of the French hospitals belonging to the A.E.F. The then conditions of those institutions are outlined in the paper before us. Much was done in seeing that the hospitals were properly equipped for eye work and setting aside certain of them for special purposes. In October, 1918, the senior consultant visited all similar institutions in England, and made suggestions upon what he saw to the American authorities. His headquarters in France were in Neufchâteau, where his colleagues were Lieut.-Col. G. S. Derby, as assistant consultant, and Lieut.-Col. Nelson M. Black, as consultant. The office of the division of ophthalmology was established at Neufchâteau. An important and useful duty of the office was to visit various eye clinics, and to encourage the officers employed there. Circulars for the guidance of ophthalmologists were issued from time to time by the senior consultant, and in this way useful information was disseminated about "gassed" eyes, injuries of the eye, panophthalmitis, orbital injuries, brain injuries, trachoma, refraction cases, the keeping of records, the conservation of pathological specimens, the technic of Frost's operation, and so forth. An optical base and eight auxiliary units, each having an authorized strength of one officer and thirty-six men, were organized at Camp Crane, Allentown, Pa., in March, 1918, and left the United States on April 4, 1918. They arrived in France on May 4, 1918. Nineteen tons of optical machinery were shipped from America before

the men left for France, but on the arrival of the units the position of the consignment could not be located, and this led to a delay of nearly two months in the work. Meanwhile, facilities were afforded for a number of the members of the base unit to work in the shop of Messrs. E. B. Meyrowitz. The buildings for the A.E.F., which were situated first at Neuilly and afterwards at Porte St. Cloud, were in full operation on October 1, 1918. The machinery and equipment were based upon the approximate production of one hundred pairs of glasses a day. From July 27, 1918, to December 1, 1918, 21,828 prescriptions were filled, not to mention smoked spectacles and repair jobs. The unusual nature of the prescriptions caused many complications, and necessitated the manufacture of special tools and gauges. But 50 per cent. of the prescriptions received averaged spherical from 2·00 to 5·00 D., in combination with cylinders from 1·5 to 5·00 D. Optical units were assigned to seven of the more important base hospitals and to one camp hospital. More were available as they arrived from the United States. The writer expresses his opinion that the optical units, although more or less experimental, proved their value to expeditionary forces. The cessation of hostilities rendered nugatory the proposal for mobile optical units. The number of American soldiers totally blinded from battle injuries is under one hundred, and it is most satisfactory to note that a serious attempt was made to carry out their preliminary education in France before removal to the United States.

As the result of his experience, Greenwood makes recommendations for the organization of an ophthalmic service. During the past campaign there was on numerous occasions a shortage of men capable of undertaking eye work. The need was so obvious that the chief surgeon, on the recommendation of the senior consultant, cabled the request that an ophthalmic surgeon be attached to all evacuation hospitals sent over from America in the future. No eye surgery should be done in the field hospital, and only minor cases should be retained in them. On an emergency the advice of an eye surgeon can be obtained from the nearest mobile or evacuation or base hospital. An ophthalmologist should be attached to every mobile hospital, which should be equipped to deal with eye surgery. All ophthalmic surgeons attached to mobile and evacuation hospitals should be prepared to undertake other duties in addition to their own proper work. Mobile hospitals need not be fitted for refraction cases. An evacuation hospital, on the other hand, should be fitted to deal with all varieties of eye work, and, of course, be provided with a trial case of lenses, and a hand perimeter with charts. Base hospitals should be provided with an ophthalmic surgeon, and be fully equipped. Where justified by the amount of work, the eye

service should be separated from the ear, nose, and throat departments. Where several hospitals are close together, one should be selected to receive all eye cases, and in a similar way the several ophthalmic surgeons can be grouped. Such a plan was carried out in Base Hospital 36 for the Vittel and Contrexèville areas, and in Base Hospital 46 for the Bazoilles group. A permanent record of refraction done at home should accompany the soldier going abroad, and in the case of officers is best carried with his personal papers and pasted inside the cover of the soldier's pay book. The instrumental equipment is specified, and we note that the Lancaster type of magnet is alone included in the list.

ABSTRACTS

I.—MYOTONIC DYSTROPHY

Fleischer, Bruno (Tübingen).—Myotonic dystrophy (myotonia atrophica) with cataract. (Ueber myotonische Dystrophie mit Katarakt.) *Arch. f. Ophthal.*, Vol. XCVI., parts i and ii., 1918.

Fleischer here gives a careful account of myotonic dystrophy, of which thirty-eight cases have been observed in the Tübingen Clinic since 1901, with special reference to the occurrence of cataract. He gives in tabular form an analysis of his cases according to the various symptoms, as well as a number of tables to illustrate the hereditary nature of this affection.

The author sums up his remarks as follows:

Pre-senile cataract appearing at the age of 25 to 45 years is frequently a symptom of this disease.

The disease is distinguished by muscular and general symptoms, atrophy of certain muscles of the head and neck, forearms, and small muscles of the hand, extending later to the lower extremities, trunk, and finally affecting the musculature of almost the entire body, and myotony in the muscles of the hand, tongue, and jaw; atrophy or degeneration of the thyroid glands, general emaciation, atrophy of the pharyngeal muscles with consequent disturbance of speech and deglutition, cataract, vasomotor disturbances, baldness in males, atrophy of testicles, sexual disturbances in both sexes, and mental and moral deterioration.

This affection is steadily progressive, it rarely begins before the age of 25 and usually before the fiftieth year, leads to death, which not infrequently supervenes at a much earlier date from intercurrent disease. In the cases associated with cataract, it appears in females most frequently between the ages of 25 and 35, and in males

between 35 and 45. The incipient signs of cataract are observed in the earliest stages of the disease.

The examination of families has shown that myotonic dystrophy is a markedly familial hereditary affection, the germ of which can be traced back for five or six generations. The heredity is homochronous and homologous. This disease, therefore, belongs to the group of typical familial-hereditary diseases of a degenerative character.

Other signs of the disease in descending series of generations are to be found particularly in the appearance of pre-senile cataract, in the generation preceding the myotonia, without other symptoms of myotonic dystrophy—usually at a more advanced age than in the phase of myotonic degeneration—or sometimes of a simple senile cataract in still earlier generations. To these may be added an increased infant mortality, childless marriages, celibacy, so that certain branches of the families die out and hence the disease disappears.

The cataract cannot be regarded as the sign of a latent tetany owing to the difference in its form from that of tetany; but, like the latter, it very probably owes its origin to an affection of the glands of internal secretions.

(In myotonic dystrophy the cataract begins in the posterior cortex with opacity of the posterior pole and radiating striae in the form of a star; similar changes then appear in the anterior cortical layers, accompanied by very fine punctate opacities throughout the lens substance. This condition then develops fairly rapidly into a complete soft cataract with a small nucleus, corresponding to the age of the patients.

In tetany the lens frequently shows a large hard nucleus and the cataract commences with opacities in a supranuclear zone similar to those found in lamellar cataract.)

With the probability of this origin the appearance of cataract, pre-senile and senile, in earlier generations acquires special significance for the pathogenesis of the disease which, owing to the presence of disturbances of internal secretion in conjunction with dystrophic and myotonic symptoms, is of great theoretical interest, especially when the probability of changes in the central nervous system is taken into consideration. The question of the connection between the disturbances in the glands of internal secretion and the affection of the muscles and probable disease in the central nervous system must be reserved for further research when the pathological anatomy of this disease has been made clear.

By reason of its relation to changes in the glands of internal secretion the cataract of myotonic dystrophy is of very great interest for the problem of the aetiology of cataract in general.

The author appends a long list of references to the literature of the subject, and shows in several plates photographs illustrative of the myotonic facies and other features of the disease.

THOMAS SNOWBALL.

II.—MACULAR VISION IN HEMIANOPIA

(1) **Van Schevensteen, A.— Traumatic incomplete left homonymous hemianopsia or quadrant anopsia with conservation of the macular visual fields and pure word blindness. (Hémianopsie homonyme gauche traumatique incomplète ou anopsie en quadrant avec conservation des champs visuels maculaires et cécité verbale pure.)** *Ann. d'Oculist.*, June, 1916.

(1) **A. Van Schevensteen, junior,** records the case of a left-handed soldier in whom a fracture of the right parieto-occipital region of the skull by a shrapnel bullet was followed by homonymous hemianopic defects in the left lower quadrants of his fields of vision. The macular fields were not involved, and the colour fields within the areas in which vision was retained were normal. The injury caused unconsciousness, and on coming to himself, the patient was blind. He gradually recovered his sight, but his visual acuity never got better than 0·3 in each eye. The defects in the visual fields remained unaltered for three months. The patient could recognise printed or written letters easily, and could read usual words of one or two syllables, but could not understand polysyllabic words or put a sentence together. The internal visual image of words was retained. In writing he had great difficulty in keeping on the lines. He copied printed letters one by one, and at the end of a couple of hours he could only read some one- or two-syllable words in his copy. As is well known, the cortical centre for the mental representation of ideas in right-handed subjects is situated in the left hemisphere, and word-blindness therefore normally accompanies injuries of the left side of the head, and is associated with right hemianopsias; but in the present case the patient being left-handed word blindness was caused by a lesion of the right side of the head, and was associated with left hemianopsia. The case contrasts with one previously reported by the author* in which an injury to the right parieto-occipital region of a right-handed man caused hemianopic defects in the left lower quadrants without great difficulty in reading.

R. J. COULTER.

(2) **Vinsonneau, Angers.—Central vision in hemianopics with intact macular zone. (La vision maculaire chez les hémianopsiques à zone maculaire intacte.)** *Arch. d'Ophtal.*, September-October, 1916.

(2) Cases of hemianopia due to wounds of the skull by firearms have attracted the close attention of ophthalmologists during the

Arch. d'Ophtal., 1907, p. 158.

present war. In a paper published in November, 1915 *(Arch. d'Ophtal.*, Nov.-Dec., 1915, p. 785*)*, Terrien and Vinsonneau devoted special attention to the condition of central vision in cases of hemianopia due to wounds of the skull received in battle. An unexpected result of their investigations, to which they directed attention, was that in a number of observations in cases of homonymous hemianopia with preservation of macular vision, the visual acuity of the eye on the same side as the loss of field (right eye in right hemianopia, left eye in left hemianopia) was lowered to a greater degree than that of the eye on the opposite side; in other words, the eye on the *same* side as the *cranial lesion* suffered *less* deterioration of central vision than did the eye on the opposite side. A study of cases published by others seems to confirm these observations and the authors propose to deal more fully with all recorded cases bearing on this symptom after the war. They have already suggested a possible anatomical explanation of the unequal deterioration of vision which they propose to discuss anew in their later work. J. B. LAWFORD.

(3) **Cerise, L.—Two cases of double hemianopia with preservation of macular vision. (Deux cas d'hémianopsie double avec conservation de la vision maculaire.)** *Arch. d'Ophtal.*, September-October, 1916.

In the meantime **Cerise** reports two additional cases which exhibit an inequality of central vision in favour of the eye on the side of the cerebral lesion. (1) Wound by a shell splinter in the left upper occipital region. Right homonymous hemianopia: right eye V.=4/10, left eye V.=7/10. (2) Wound by a fragment of shell in the left upper occipital region. Right homonymous hemianopia; with preservation of the macular zone: right eye V.=4/10, left eye V.=6/10. J. B. LAWFORD.

III.—EYE CHANGES IN TRENCH NEPHRITIS

Kirk, J. (late R.A.M.C.)— Eye changes in trench nephritis *Brit. Med. Jl.*, January 5, 1918.

Kirk examined the eyes of 70 or 80 cases of trench nephritis chiefly in soldiers between 20 and 30 years of age, who for the most part were seriously ill of the disease. As a result of examination of the eyes the cases were classified by the author in three groups, A, B, and C. Group A numbered about 21 men, all convalescent, and in 4 only of them (19 %) were slight retinal changes found—small spots of exudation, a punctate haemorrhage, slight haziness

of the optic disc, or a little oedema along the course of the veins. Group B included about 20 patients, with some albumin in the urine, breathlessness, and oedema, and of these cases 8 (40 %) showed minor retinal changes, but 1 suffered from a somewhat severe neuro-retinitis. Group C, 13 in number, had nephritis in marked form, and of these 4 had severe and 4 slighter retinal changes (61 %). As regards the retinal changes Kirk notes that the spots of exudation were near the disc and in the macular region, although the star-like figure familiar to ophthalmic surgeons was not observed; haemorrhages were uncommon; the optic disc was often affected; small areas of oedema were present along the veins; and, lastly, the gradual absorption of the smaller patches of exudation could be followed in several instances. Kirk sums up by saying that in trench nephritis the retina is very liable to be involved; that the changes are probably due to a specific toxin; that the retinal deposit tends to clear up in most cases; and that the retinal condition is allied to the acute retinitis of pregnancy, scarlatina, and acute toxaemia, and should not be confounded with the retinitis of chronic nephritis with its permanent changes in the retinal vessels and tissues.

S. S.

IV.—FLAVINE

Lawson, Arnold (London).—Flavine in Ophthalmic Surgery *Lancet*, June 28, 1919. (*Ophthal. Soc.*, May, 1919).

Ophthalmic surgeons everywhere will be much interested in **Lawson's** article upon the use of flavine in eye work. It is a clinical and at the same time a critical article in which the author simply states his experiences of the class of case in which this drug is of service, and of the class of case in which it is not.

Flavine is employed in one or two forms, namely acriflavine (methyl chloride of diamino-acridine) and proflavine (hydrochloride or sulphate of diamino-acridine). Both are potent antiseptics, the bactericidal action of which is enhanced by admixture with serum. They are comparatively nontoxic both locally and generally. In concentrated solutions proflavine is the less irritating and this, in a standard solution of 1 in 1000 normal saline, is what the author has employed. If, however, the solution is to be used for more than two or three days this strength becomes slightly irritating and should be reduced to 1 in 4000. The author divides his experiences into " Wounds " and " Inflammatory Conditions " of the eye. In this connection it is pointed out and insisted upon that flavine is to be regarded rather as an antiseptic than as a disinfectant. It is to

be used to prevent sepsis rather than to cure it. Consequently its use in wounds is much more valuable than in inflammatory conditions. There are four classes of wounds in which Lawson has found flavine "of the highest value," namely, wounds caused by foreign bodies, operations requiring sutures, operations on "dirty" eyes, and as a dressing for grafts.

With regard to the first heading, the author makes the remarkable statement that in the two years during which he has employed flavine he has not met with a single case, coming under early treatment, which has given rise to trouble on the ground of sepsis. Again, in squint operations, for example, "troubles with sutures will vanish if flavine is dropped into the eye immediately after the operation, and its use steadily continued during the wound healing." With regard to operations on dirty eyes the author's words may again be quoted. "Perhaps this point most frequently arises in some cases of perforation of the cornea with extrusion of the iris and in a certain number of cases of acute congestive glaucoma. In both of these classes the danger of sepsis spreading to the wound edges, and so to the interior of the eye, is, I believe, very sensibly diminished by the use of flavine at the time of operation, and for a couple of days or so after the operation. In such cases a solution of 1 in 1000 can be safely used and is to be preferred to a weaker one."

With regard to grafts Lawson is also quite specific in his statement:—"The surface to be grafted, after bleeding has been stopped, should be well swabbed over with flavine (1 in 1000), and strips of gauze well soaked in flavine should be laid over the graft when applied. This dressing need not be touched for several days. All that is necessary is to moisten the gauze dressing with fresh flavine from time to time. In the case of Thiersch grafts, where it is most desirable not to interfere with the graft for at least a week, I prefer to use for the dressing itself the weaker solution of flavine (1 in 4000) rather than the stronger (1 in 1000), and have found it perfectly efficacious."

With regard to inflammatory conditions of the eye, such as conjunctivitis, flavine alone is not to be relied upon. It is not a good disinfectant. It may be used in combination with the usual remedies. Lawson makes the interesting suggestion that flavine might be found to be a better and safer prophylactic than silver nitrate against ophthalmia neonatorum. He has not had an opportunity of testing it in this respect, and if one might offer a friendly criticism, it is that the sentence "I would commend its trial to midwives and doctors" is in need of emendation. The author considers, from his personal experience, that the use of flavine (1 in 4000) is of value in actual ophthalmia neonatorum, in that it protects the cornea from invasion. He employs a drop of the weak solution after each irrigation of the eye. In corneal

ulcerations there is, as a rule, no advantage in the use of flavine, but in hypopyon ulcer a solution of flavine can be quite safely used to wash out the anterior chamber. In relapsing blepharitis an ointment of proflavine oleate (1 in 1000) had a very good effect in one case, but the author does not feel justified in making positive statements as to its use in such conditions.

ERNEST THOMSON.

V.—PREVENTIVE LEGISLATION

(1) **Allport, Frank (Chicago).—State legislation concerning wood alcohol.** *Ophthalmology*, July, 1916.

(1) This is the fourth of a series of papers by **Allport**, dealing with legislation in the United States in its relation to ophthalmology.

It is now well known that wood alcohol, or methyl alcohol, when either imbibed or inhaled can produce serious toxic symptoms, leading to blindness and even to death. Wood alcohol is obtainable on the market in three forms: (1) in its raw, unpurified form, which is so foul smelling and disgusting to taste that there is little danger that it will be used for drinking purposes; (2) denatured, industrial, or domestic alcohol (our "methylated spirit"), mainly composed of ethyl alcohol, but with enough methyl alcohol added to render it unfit for consumption; and (3) various forms of deodorised or purified wood alcohol, known as Columbian spirits, Colonial spirits, etc., from which the odour, taste, and colour of wood alcohol have been removed, but without reduction of its intensely poisonous character.

In the United States especially there have been a large number of cases of wood alcohol poisoning due to the internal use of one or other of these forms of deodorised wood spirits. The danger of such an occurrence is much increased by the fact that these are often sold without warning as to the poisonous nature of the material and under descriptions which disarm suspicion, for example: "A pure, refined spirit for domestic use," "A perfect substitute for grain alcohol." The main point in Allport's paper is that it is unnecessary to run the risks attached to the use of this substance, since denatured alcohol is equally cheap, is easy to obtain, and does not involve the same dangers.

Within the last ten years efforts have been made by legislation throughout the United States to limit the use of wood alcohol. This paper contains a summary of the laws of the different States dealing with the subject. Although these laws are, for the most part, quite clear, and their intention is well known, it would not be difficult, as Allport points out, to evade them. He goes so far as to

suggest that the manufacture of "purified" wood alcohol should be stopped, or, if it is indispensable for certain industries, it should pass straight from the manufacturer to the industry concerned, and should be kept out of the hands of retail dealers.

A. J. BALLANTYNE.

(2) **Allport, Frank (Chicago).—State legislation concerning shop lighting, shop accidents, shop conditions, the common towel, etc.** *Ophthalmology*, October, 1916.

(2) In this article (the fifth of the series), **Allport** points out that all measures which prevent disease or injury of the eyes in industrial life are not only beneficial to the workers, but also promote economy by increasing efficiency and output.

Some of the measures to which he draws attention are: suitable and efficient lighting, provision of goggles for protection against foreign bodies or against excessive heat and light, the fitting of protecting hoods and air suction in connection with grinding wheels, and the employment of secure joints in leather belting. He advocates the abolition of the unskilled "shop oculist," and also speaks in favour of the systematic examination of the eyes of industrial recruits, and the fitting, where necessary, of correcting glasses.

The second part of the paper consists of a summary of the "shop laws" of the different States of the Union, which deal directly or indirectly with the eyes and eyesight. This contains much interesting and important matter, but cannot be abstracted.

A. J. BALLANTYNE.

VI.—HEMIANOPIA IN BRAIN INJURIES

Best, F. (Dresden).—Hemianopia and sensory blindness in brain injuries. (Hemianopsie und Seelenblindheit bei Hirnverletzungen.) *Arch. f. Ophthal.*, Vol. XCIII, Part i, 1917.

Best has had the opportunity of observing numerous cases of head injury in the war in which hemianopia was one of the symptoms. In this lengthy paper he publishes notes of several of his more interesting observations. He points out the difficulty of accurate delineation of the fields of vision in such patients. The variations in the fields from day to day may be considerable. His results may be summed up as follows:

Of his hemianopia cases from war injury, 30·2 per cent. were double, 25·6 per cent. right sided and 44·2 per cent. left sided; complete blindness as a result of double hemianopia was never observed. Death occurred in 12·8 per cent. One sided hemianopia with accurate limit through the fixation point occurred once, with complete destruction of the peripheral field, but preservation of the

macula in 3·5 per cent. ; retention of the peripheral field with complete loss of the macula, never. These figures refer to cases on discharge. In recent cases of hemianopia the proportion of cases in which the inferior field was affected, 58·1 per cent., was much greater than those in which the superior field suffered, 5·8 per cent. Paracentral double scotoma without damage to the peripheral field occurred in 3·5 per cent., double scotoma with damage to the peripheral field in 12·8 per cent., macular defect with peripheral destruction in 25·6 per cent., while in 38·4 per cent. there was only peripheral defect without scotoma or macular defect. In 18·6 per cent. the pupil on the affected side was enlarged, in 7 per cent. that on the opposite side. In 10·5 per cent. nystagmus, in 4·7 per cent. abducens paresis, in 2·3 per cent. oculomotor paresis, and in one case total ophthalmoplegia were found. Incorrect optical localization regularly accompanies hemianopia. In 31·3 per cent. of cases number counting by eye was defective and in 5·8 per cent. there was optical agnosis. In 25·6 per cent. alexia and in 14 per cent. agraphia was present.

In cases of hemianopia, which practically always occurs in injuries of the calcarine area, all sight functions in the affected parts of the field are damaged ; there is no evidence of a special colour differentiation centre except in so far as sensory disturbances (aphasic) may be affected. The seat of the cerebral centre for optical localization is in the calcarine area, that for the upper part of the field being situated in the lower part of the calcarine fissure and that for the lower part of the field in the upper lip of the fissure. As regards the seat of the cerebral macula, Best has no fresh suggestion to offer, but considers that the theory postulating a seat for both halves of the macula in both hemispheres is highly improbable, since the escape of the macula is not a sharply defined circumference, but a more or less large remnant of a hemiamblyopic field in which the most important part has retained its function. The rarity of the complete destruction of half the field of vision is to be explained by the relatively large area of the calcarine, the destruction of the lower part of which completely is incompatible with life, owing to the proximity of the cerebellum.

The calcarine area is also the centre for reflex ocular movements, particularly those connected with fusion and convergence. It is also the centre for optical localization. Alexia and agraphia seem to follow more often left sided injury. In general, both these affections seem to be independent and not due to narrowing of the field for letters. Primitive visual injuries (such as number counting) occur equally in lesions of either side, but severe sensory blindness only in injuries of both sides.

E. E. H.

VII.—CONTUSION OF GLOBE AFTER SHOT INJURY

Igersheimer (Göttingen).—On the anatomy of contusion of the globe following shot injury. (Zur Anatomie der Contusio Bulbi durch Schussverletzung.) *Arch. f. Ophthal.*, Vol. XCIII, Pt. ii, 1917.

Igersheimer's case was a soldier of 29, who came under observation six days after his wound. The wound of entry was on the left side of the forehead, near the hair margin, and that of exit near the right outer canthus. The right upper lid was somewhat swollen and red, the globe slightly proptosed and the pupil did not react. The vitreous was obscured by blood, but, when this had been cleared up, a rupture of the choroid concentric with the papilla became visible. It was also possible, a little later, to make out that the retina was uneven over the white area and that the vessels were partly obscured by the white mass. A coloured plate of the ophthalmoscopic appearances is given. Two months after the injury the man was marked for discharge, when meningitis suddenly set in and he died. Igersheimer obtained the globe and gives a minute account of its microscopical anatomy, illustrated with three text drawings. Histological examination showed that the grey-white mass seen with the ophthalmoscope was a subretinal scar tissue formation of the choroid which had projected in a spur-like way into the retina. In this area the retina was more or less atrophic. The choroid was split up in its anterior layers through the formation of scar tissue, and the destruction of the choriocapillaris and also to some extent of the large vessel layer, while the suprachoroidea was well preserved. Whether the proliferation of the choroidal tissue was the primary affection, and the disturbance of the pigment epithelium and posterior layers of the retina the second, or whether the tear in the pigment epithelium produced the other changes, or finally, the interference with the ciliary circulation was the underlying cause of all the other changes, could not be determined from the preparations.

Igersheimer adds a brief account of another eye in his possession, in which the final stages of such an injury are demonstrable. He gives no account of the nature of the injury in this case, but states that careful examination revealed no perforation or external injury. On one side the iris and ciliary body were normal. On this side the retina was degenerated near the ora serrata; corresponding with the degeneration, the pigment epithelium had proliferated. Then followed a broad band in which retina and pigment epithelium were well preserved. Further in, the retinal rods and cones were lost, and the pigment epithelium became irregular and wandered into the retina. Close to the papilla there was a scar between

retina and choroid, as in the previous case. In the other half of the globe the retina was completely destroyed, as also the pigment epithelium and part of the choroid, their place being taken from the papilla to the ora serrata by scar tissue which was half the thickness of the sclera and contained scattered pigment. The scar tissue was separated from the sclera by choroidal remnants (cross section of vessels and scattered pigment clumps). In the neighbourhood of the ora serrata the vitreous contained blood clot. The pigment layer of the ciliary body and iris was also affected, being partly destroyed and partly scattered through the tissue.

E. E. H.

VIII.—MISCELLANEOUS

(Third Notice)

(1) **Lo Cascio (Rome).—The composition of the pigment of melanotic sarcoma of the choroid. (Sulla costituzione del pigmento del sarcomi melanotici della coroide.)** *La Clin. Oculist.*, October, 1915.

(1) The examination of the pigment of these tumours hitherto has been faulty, says **Lo Cascio,** because the method employed to extract them has involved alteration of their composition. He thinks that he has been able to remove the pigment without disturbing it by means of copious washing with distilled water containing a few drops of chloroform.

He finds the percentage as follows:

C. 53·17 per cent. H. 6·16 per cent. N. 12·40 per cent. S. 2·53 per cent. Fe. 0·152 per cent. P. 0·294 per cent.

This agrees closely with the composition of the retinal and choroidal pigments of the normal eye, which two have been shown by Lo Cascio to be identical.

C. 54·45 per cent. H. 5·88 per cent. N. 12·35 per cent. O. 26·08 per cent. S. 1·77 per cent. P. 0·251 per cent. Fe. 0·101 per cent.

The small differences may be due to experimental errors.

HAROLD GRIMSDALE.

(2) **Lamb, Robert Scott (Washington).—Cyanosis retinae et conjunctivae in connection with pulmonary stenosis and patent ductus arteriosus.** *Trans. Amer. Ophth. Society*, Vol. XIV, Part ii, 1916.

(2) **Lamb** reports cyanosis of the conjunctiva and retina in a coloured girl, aged 13 years, believed to be affected with pulmonary

stenosis and patent ductus arteriosus of congenital origin. The condition of the retinal vessels is shown by two coloured plates. The vessels, as usual in such cases, were very tortuous and much dilated; the distinction between arteries and veins could be readily made. The palpebral conjunctiva was almost purple, and the bulbar conjunctiva was congested. The author makes some references to the literature of the condition.

S. S.

(3) **Rochon-Duvigneaud, A. (Paris).—The protection of the cornea in crawling vertebrates (serpents and anguiliform fishes). [La protection de la cornée chez les vertébrés qui rampent (serpents et poissons anguiformes).]** *Ann. d'Ocul.*, May, 1916.

(3) **A. Rochon-Duvigneaud** has studied the manner in which the corneae of serpents and anguiliform fish are protected. He finds that serpents have in front of the cornea a kind of watch glass formed by a transformation of the lower lid which has become fixed in front of the eye and transparent. There is a modified conjunctival sac between the cornea and the "watch glass," which latter is shed with the slough. In anguiliform fish (eels, etc.) a similar kind of protection is developed in a different way. In them the cornea consists of a superficial thick layer continuous with the skin and a deep thin layer continuous with the sclerotic between which there is a loose tissue consisting of parallel non-anastomosing fibres which functions as an intra-corneal articulation allowing the globe to be moved by its muscles under the cutaneous layer of the cornea which forms its protecting layer. There is no conjunctival sac.

R. J. COULTER.

(4) **Leenbeer, C. A. (Chicago).—An orbital endothelioma.** *Ophthal. Record*, May, 1916.

(4) **Leenbeer** has reported on this case of orbital endothelioma on two previous occasions. After removal of the tumour by Krönlein's orbital resection in 1905, the growth recurred. After 1906, and although it apparently never became larger than it was at the time it was excised, and never gave the patient any trouble, the eye and orbital contents were exenterated in 1915. The histological examination showed that the growth was a perivascular endothelioma.

The author's conclusions from this case are that: endotheliomata of the orbit are of slow growth and painless. They are prone to return at the site of the operation; but the neighbouring lymph nodes are not affected early.

Apparently, the growth was primarily one affecting the optic nerve or its sheath, but the writer does not say so.

J. JAMESON EVANS.

(5) **Ferree, C. E. and Rand (Bryn Mawr College).—A résumé of experiments on the effects of different conditions of lighting on the eyes.** *Ann. of Ophth.*, Vol. XXV, No. 3, July, 1916.

(5) The object of the work by **Ferree** and **Rand** was to compare the effect of the different lighting conditions on the eye, and to find the factors in a lighting situation, which cause the eye to lose in efficiency and to experience discomfort. The paper mainly concerns itself with what are spoken of as the "distribution factors," *viz.*, the evenness of illumination, the diffuseness of the light, the angle at which the light falls on the object viewed, and the evenness of surface brightness. The best control of these factors is got when dealing with a room properly lit by daylight; the next best, when an indirect system of artificial lighting is employed. The direct and semi-indirect systems are also considered. The investigations were by no means abstract in character. All the variations obtained were got by employing lighting installations in common use, and precise specifications of illumination effects were made in each case. The conclusions arrived at may be very shortly summarised.—(1) The influence of the distribution factors is of the greatest importance. (2) In the direct and semi-indirect systems too much light is often used for the comfort and welfare of the eye. (3) The angle at which the light falls on the object is important, but is not nearly so important as evenness of the surface-brightness in the field of vision. (4) Of the systems of artificial lighting, that which runs the indirect method closest is the semi-indirect with reflectors having a high density. (5) The problem of installation is not so simple for the semi-indirect as for the wholly indirect reflectors. (6) The most difficult feature in the problem of protecting the eye is encountered in the lighting of rooms of low and medium height. (7) The loss of efficiency sustained by the eye in an unfavourable light seems to be muscular, and not retinal. (8) Eye shades are not an adequate substitute for lamp shades. (9) The observation of motion-pictures causes the eye to lose heavily in efficiency, and (10) there is a close relationship between loss of visual efficiency and ocular discomfort.

R. H. ELLIOT.

(6) **Shahan, William E., and Lamb, Harvey D. (St. Louis).—Histologic effects of heat on the eye.** *American Journal of Ophthalmology*, August, 1916.

(6) **Shahan** and **Lamb** have experimented on the rabbit eye with the view of determining the effects of heat applied to the cornea. This was done by means of a "thermophor." The thermophor is a metal tube containing a thermometer and surrounded by a resistance coil to generate heat, while within the coil is placed a

zinc-iron sensitive strip to permit the temperature to be kept at any constant point. Into one end of the metal tube are inserted applicators of various shapes to be applied directly to the cornea (See *Journal of the American Medical Association*, August 5, 1916).

In all the experiments, five in number, the applicator had a diameter of 7 mm. and, in all, the time of application was ten minutes, but the degree of heat varied from 119 to 136 degrees Fahrenheit. The anatomical findings in detail must be sought in the original. The following are the authors' conclusions.

"We might, therefore, conclude from our findings that the immediate effects of the heated applicator upon a rabbit's eye are first a swelling of the heated portion of the cornea due to a localized oedema, which with increase of heat is accompanied by destruction of the anterior epithelium, then a destruction of the posterior endothelial layer, further by a coagulation necrosis of Bowman's membrane and anterior layers of the substantia propria of the cornea, and lastly a swelling and coagulation necrosis of the iris. Later effects are: first, the appearance of the infiltration of the anterior layers of the cornea with polymorphonuclear leucocytes, then the formation of scar tissue and new blood-vessels to replace the destroyed substantia propria of the cornea. Lastly, the new connective tissue with its round pigment cells, where before was iris stroma."

ERNEST THOMSON.

NOTES

Deaths.

CAPTAIN R. S. KENNEDY, R.A.M.C., was killed upon the field of honour in France in 1918.

Azer Wahba, a prominent member of the Ophthalmological Society of Egypt, who was in charge of Ophthalmic Hospital at Zagazig, died suddenly in June last, at the age of 34 years.

Henry G. S. Warren, assistant ophthalmic surgeon, Royal Prince Alfred Hospital, died recently at Sydney, Australia.

Mortimer Frank, of Chicago, died on April 21, 1919, at the age of 45. He was ophthalmologist to the Michael Reese and to other hospitals. In matters of medical history he was an authority, and his library of rare medical books and engravings was extensive.

Frank van Fleet, of New York, died suddenly on April 5, 1919, at the age of 59. He was surgeon to the Manhattan Eye, Ear, and Throat Hospital.

The deaths of the following American ophthalmic surgeons are also announced: F. K. Brown, H. L. Lutz, and C. B. Bush, of Philadelphia; W. M. Floyd, of Henderson, Kentucky; L. M. Patmer, of Boston; H. F. Stowell, of Rochester; A. B. Norton, and H. S. Oppenheimer, of New York City; W. K. Cherryholmes, of Hamilton, Ohio; and N. C. Steele, of Chattanooga.

E. H. Pagenstecher, of Strassburg, died suddenly on Nov. 12, 1918, at the age of 39 years. His name was identified with experimental researches upon the origin of developmental deformities of the eye. He served with the German Army during the late campaign.

We have just learned of the death of Hugo Wintersteiner, which took place at Vienna last year at the age of fifty-three. He was one of the best ophthalmic microscopists in Germany, and his book (1897) "Das Neuro-Epithelioma Retinae" is well known everywhere.

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Appointments.

BEATSON HIRD and T. HARRISON BUTLER have been elected surgeons to the Birmingham and Midland Eye Hospital.

G. Viner has been appointed ophthalmic surgeon to the Hospital for Epilepsy and Paralysis, Maida Vale, W.

R. H. Dickson has been appointed ophthalmic surgeon to the Stoke-on-Trent Guardians' Institution.

Guy F. Haycraft has been appointed ophthalmic surgeon to the Walsall General Hospital.

J. Allan has been appointed assistant surgeon, West of England Eye Infirmary, Exeter.

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Paris Ophthalmological Society.

THE Thirtieth Anniversary of the foundation of the Paris Ophthalmological Society will be commemorated by a meeting of the Society on November 16 next. The discussion will be opened by Dr. Bailliart upon the retinal circulation in health and disease.